

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: Slawson Exploration Company, Inc.

Well Name/Number: Arbalest 1-31H

Location: NE NW Section 4 T20N R60E

County: Richland, MT; Field (or Wildcat) Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 25-35 days drilling time.

Unusually deep drilling (high horsepower rig): Triple derrick rig to drill a single lateral horizontal Bakken Formation test, 15,216' MD/10,418' TVD.

Possible H₂S gas production: Possible H₂S gas from Mississippian Formations.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Triple derrick drilling rig to drill a single lateral horizontal Bakken Formation test, 15,216' MD/10,418' TVD. If there is an existing pipeline for gas in the area and associated gas can be gathered or if no gathering system nearby associated gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to intermediate string hole to be drilled with oil based invert drilling fluids.

Horizontal lateral will be drilled with oil based invert drilling fluids. Surface casing hole will use freshwater and freshwater mud system.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to O'Brien Creek, about 1/16 of a mile to the south from this location.

Water well contamination: None, closest water wells are about 1/8 of a mile to the southeast and about 7/8 of a mile to the southeast from this location. Depth of these stock and domestic water wells range from 410' and shallower. This drilling permit states it will drill surface hole with freshwater to 1550'.

Recommend that 1722' minimum amount of surface hole should be drilled and 1722' of steel surface casing and cement it to surface.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No, Class I stream drainages.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☒ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: _____

Comments: 1722' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and BOP equipment to prevent.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None anticipated.

High erosion potential: Yes high erosion potential from moderated cut and fill slopes, location needs a moderate cut, up to 29.8' and a moderate fill, up to 16.0', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, large well site 405'X450' for a dual well location, Arbalest 1-31H and Boomerang 3-4.

Damage to improvements: Slight, surface use is grazing land.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction

Activity, under ARM 17.30.1102(28).

Comments: Access will be over existing county road, #354. Will construct/upgrade about 2461' of new access road into this location off the existing county road. Oil based invert drilling fluids will be recycled. Completion fluids will be trucked to a Class II disposal. Operator will utilize a closed mud system. Cuttings and mud solids will be disposed of in the lined cuttings pit. Cuttings pit will be allowed to dry and then backfilled with subsoil clays. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residence is 1.25 miles to the northeast from this location.

Possibility of H2S: Possible H2S gas from Mississippian Formations.

Size of rig/length of drilling time: Triple drilling rig 25 to 35 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems. (BOP's 5,000psig annular, pipe and blind rams) rule 36.22.1014.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): Little Missouri National Grasslands, about 1.5 miles to the east in North Dakota.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Least Tern, Whooping Crane and Piping Plover. Candidate species are the Sprague's Pipit and the Greater Sage Grouse. NH tracker website indicates six (6) species of concern are the Meadow Jumping Mice, Sprague's Pipit, Evening Grosbeak, Whooping Crane, Loggerhead Shrike and Greater Short-horned Lizard.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private grazing lands. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern are discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Private grazing lands. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns.

Remarks or Special Concerns for this site

Single lateral horizontal Bakken Formation test, 15,216' MD/10,418' TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/ Steven Sasaki

(title:) Chief Field Inspector

Date: June 16, 2012

Other Persons Contacted:

Bureau of Mines and Geology, GWIC website

(Name and Agency)

Water wells in Richland County, Montana

(subject discussed)

June 16, 2012

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Richland County

(subject discussed)

June 16, 2012

(date)

Montana Natural Heritage Program Website

(Name and Agency)

Heritage State Rank= S1, S2, S3 T20N R60E

(subject discussed)

June 16, 2012

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____